CAWST Trial testing WASH Hub based on real world learning

Credit proposal no.7F-09981.02.17

Contract n 81075381

Project Outcomes, Recommendations and Activity Report

November 2023

This report covers the key outcomes and recommendations from a grant provided by SDC for the "Trial, testing and analysis of recommendations for the WASH Hub based on real world learning". All of this was undertaken with the goal of getting closer to being able to build the "1.1 WASH Hub" initiative of the WASH Roadmap 2025.

Executive Summary

Building on the previous WASH Hub scoping report, this report picks up on the three areas identified in the WASH Hub scoping report as needing further work and analysis:
1. For it to be "living and breathing" alongside current and new sector platforms, until it truly enables cohesion across other platforms or replaces legacy sites.
2. The integration of online and human interaction, facilitating peer-to-peer exchanges
3. Ownership, governance, financing and human resource model to support the sustainability of the platform and services.

CAWST held calls and surveyed a variety of stakeholders to gather perspectives on these topics, while also learning from our own operations and our involvement in complementary projects such as SaniHub.

Key findings include:

Living alongside existing platforms requires a high degree of acceptance of how work *actually* gets done around the world. For example, across generations and regions, the usage of various communication channels and platforms is best described as diverse. Realistically, there is little

hope of consolidating all of these diverse channels together into one global standard. The concept of Hubs is proposed as a way of putting *just enough* structure around existing peer groups and platforms without risking harming them.

Peer support, or other human-to-human interaction continues to be high priority. CAWST's help desk has tested a variety of communication channels and approaches to responding and we have concluded that – so long as expectations are set clearly – response times need not be immediate. This preference was confirmed with survey data as well. This may ease fears that having some sort of human-to-human helpdesk requires aggressive staffing levels to maintain high response times.

As for governance, all of CAWST's recent experience developing digital products in the WASH sector leads us to strongly recommend that the roadmap needs to position one organization with strong expertise in online technical support and networking as the primary owner of the development of WASH Hub. Oversight from a board – including active contributors to WashHub – is also recommended. Financing is always a challenge in this sector, and we highlight the need to not only consider the considerable start-up (build) costs, but also ensure that funding is available to sustain the platform for a minimum of 5 years before the build is even started.

Table of Contents

Deliverable 2.1: Integration of online and human interaction for knowledge exchange

As part of this project, we continued with our exploration of how to integrate online and in-person knowledge exchange and capacity development, designed for scale, using CAWST's existing platforms and resources, which are widely used by WASH practitioners globally with a focus on English, Spanish and French speaking users.

2.1.1: Technical (live/one-on-one) support to WASH Practitioners:

CAWST uses a combination of chat-based and email support to field a broad set of questions about WASH Topics, tools (such as Wash'Em), and upcoming events. These are answered primarily by CAWST Staff, with some support from partners we have around the world. As time goes on, we will be involving partners more and more in this process.

Volume and Channels

During a 12 week period in mid-2023, we handled 1041 requests. In round numbers, that is ~350 per month or ~15 per working day. Of note, we did not promote this service during that period.

Roughly 80% of inbound requests arrive via email, with the rest arriving through website-based chat. Only a small number arrive via WhatsApp, however, we do not widely promote that channel so we should not draw conclusions about the demand for WhatsApp from our data. In fact, we view WhatsApp as an *important* channel especially for local actors in the developing world, and many of our training participants have set up Whatsapp groups to discuss topics during the course, which have continued long after its completion. This is because of cost: data is expensive on cell phone plans for many people, so email is unattractive. WhatsApp is heavily subsidized (or even free) in many developing countries because of Facebook's efforts to boost usage through subsidy.

Responsiveness

Our median response time is 8 hours, and median time to resolution is 2 days. This is not a quick response or resolution time! In our experience, there is not a strong relationship between response time and satisfaction. We set expectations about response time when users ask questions, and people seem to appreciate the help they get even when it arrives days later. Compared to some other question and answer services, this is still rapid, especially for a non-emergency focused service. For many, timeliness is less of an issue than quality and quality assurance. For comparison, RedR's Technical Support Service looked to provide a response within

24 hours in 75% of cases and WaterAid's non-emergency expert response service looked to respond within 3 days.

There are things we can (and will) do to shorten the response time, but it is nevertheless interesting to see that email and chat-based support can work – with high satisfaction scores – without real-time responsiveness.

3.5 Satisfaction

A quick post-chat survey is sent after each request. Consistently we see over 90% of respondents to that survey have rated their experience as 4 or 5 out of 5, and ⅔ of respondents rate their experience as 5/5 stars.

Tracking and Reporting

We are using a centralized system to power our helpdesk which ensures that all questions and responses – regardless of the channel – are managed in a single location. Having everything in one place helps with the management and day-to-day operations of the help desk, as well as making sure that all conversations are tracked in a systematic way, including topical tagging, and demographic information about the person asking the questions.
This systemic, centralized tracking supports our ability to report on volume, topical demand and so-on. Looking into the future, having all conversations tracked in a systematic way builds an organized corpus of text that AI (or other machine learning) can make use of as well.

Recommendations & Findings

- Help desks are a useful way of providing support on a broad range of topics, without forcing users to navigate a variety of different support channels.
- This has not proven difficult for CAWST to staff, with support from partners. The slow (but still very satisfactory) response times have helped with resourcing and staffing.
- Peer-based support *may* be more effective in humanitarian contexts since response times are more critical, and an understanding of the specific context is required to confidently answer. The concept of *hubs* discussed below could very well be the solution in these cases.
- Having local actors (CAWST's partners) supporting on the helpdesk has proven useful, especially for country-specific knowledge and for the ability to make introductions to people and organizations local to the person asking the question.
- A centralized system through which all helpdesk communications flow is critical to the long-term success of the helpdesk.
- Support for the channels used by local actors in the developing world is crucial. We must meet them on the channels they use even if those channels see little adoption amongst WASH professionals in the developed world.

- We recommend thinking of this help desk as a backstop, albeit a very useful backstop. Ideally, the information that people need is freely and easily accessible elsewhere, and a help desk is a great backstop for when that information cannot be found. If the help desk proves to be too much of a resource burden, the first line of exploration should be to understand why people are unable to find the answers they need before turning to the help desk, rather than looking at what the help desk itself can do differently.

AI powered support

Advancements in AI technology in the last year, especially the high-profile launch of ChatGPT and other Large Language Models (LLMs) have generated much discussion and exploration about how AI can help our sector, including whether AI could power a helpdesk.

There is a lot of promise with this technology, and things are evolving quickly. Today, there are too many uncertainties to say with any confidence if – or when – AI could directly provide quality answers on a helpdesk. CAWST's current approach to using AI as a support tool is guided by two principles:

1. It would be irresponsible to blindly trust AI to directly provide answers to support questions. There are very valid concerns about AI's ability to provide appropriate answers. In the WASH context, lives are at risk so our tolerance for misleading people is low.
2. It would be irresponsible to ignore AI and not find ways to experiment with it. The technology is too promising to ignore and we must play a role in shaping it.

Our current plans are to first bring AI into our own help desk as a "back office" tool for our staff to test. They could, for example, copy a helpdesk inquiry into the tool to see what sort of answer it generates. In the event that the answer is useful, it could be used as a basis for the response provided by our staff. In the event that the answer is not useful, it will be discarded. In both cases, we will use our staff's judgment to provide training and feedback to the AI tooling. Learnings from this will gladly be shared as we generate them.

2.1.2 Facilitation of Peer-To-Peer information exchange:

Online discussion forums:

Online discussion forums can be a valuable resource for professionals in the WASH sector, but they also have some general limitations:

Technical limitations:
1. Connectivity: Many low-income countries face issues with internet connectivity, which can hinder access to online discussion forums. Poor or unreliable internet connections make it difficult for professionals to participate in discussions or receive timely assistance.
2. Language barriers: Online forums are typically dominated by English, which may be challenging for non-native speakers. Language barriers can lead to miscommunication, misunderstanding, or professionals being hesitant to seek help.

Contextual/Behavioural limitations:
1. Context-specific knowledge: Solutions and best practices in WASH can be context-specific, considering factors like local culture, geography, and infrastructure. Online forums may not always provide the most appropriate advice, given their global audience and diverse contributors.
2. Trust and credibility: WASH professionals in some cultures may be hesitant to rely on anonymous sources for technical advice or fear asking questions (fear of shame) especially where there is no possibility of anonymous posts. They may prefer face-to-face interactions or recommendations from known and trusted colleagues in their network.

Other limitations:
1. Expertise and quality: Online forums may have varying levels of expertise among participants. It can be challenging to determine the credibility and accuracy of information provided, which could lead to implementing incorrect or inefficient solutions.
2. Limited interaction: Forums can be limited by asynchronous communication, meaning that responses might not be immediate, and back-and-forth discussions can be slower compared to real-time consultations.
3. Lack of customization: Professionals seeking technical support in the WASH sector often require tailored advice specific to their project or situation. Online forums can struggle to provide personalized, detailed guidance.
4. Discussion *versus* ask-and-answer: Some forums tend towards discussion. Others tend towards asking direct questions and getting direct answers. Setting expectations and moderating a given forum to optimize for "discussion" *versus* "ask and answer" is important.

From the review of the susana platform in 2017, results from 2600 people (from both CAWST and Susana user base) showed:

- Workshops, conferences, on-the-job experience, and online learning are the most preferred methods overall, while formal learning is ranked the lowest.
- The top four learning methods are similar across most groups, including members/non-members, different interests, regions, sectors, organization types, and ages. The same applies to the bottom four ranked methods.

- Exceptions to this pattern include respondents interested in fund development or those working for utilities, who ranked reading lower. Those working for "other public sector (regional level)" ranked "person-to-person" lower, resulting in three top choices and five lower-ranked methods. Those working for development banks rated webinars higher, resulting in five top choices and three lower-ranked methods.
- The results can be interpreted in different ways. It might be that people don't like online learning or that they would prefer it if the content was more relevant or better presented. Alternatively, people might like the medium but find they don't learn as well from it.

CAWST's experience with our Knowledge Point forum (https://forum.knowledgepoint.org/) which has ~1500 users posting 170 questions and 300+ discussions has shown most activity when the forum is used as an engagement platform alongside a training session or course. The organic growth of the forum requires significant content seeding and answering by CAWST-led moderators. Even with significant content setting from CAWST-led moderators, more general forums rarely generate engagement.

Social media platforms and DM spaces:

It's difficult to quantify the exact amount of WASH technical knowledge shared via Facebook, WhatsApp, Email, or SMS by professionals. However, it is clear that these communication tools play a significant role in the exchange of information and resources in the sector. The preference for each platform varies depending on individual preferences, context, and accessibility.

1. Facebook: Professionals use Facebook groups or pages to share WASH-related updates, resources, and ask for technical advice. Facebook is more accessible in some regions due to its widespread popularity and partnerships with local telecom companies that deliver free "Facebook Lite" access.
2. WhatsApp: WhatsApp is a widely-used instant messaging platform that allows for real-time communication, group discussions, and sharing of resources. WASH professionals use it regularly for direct communication with friends, colleagues, and participation in group chats for technical support. This is used mostly for project updates but ends up being used 1-1 for technical support with trusted colleagues. We have also seen training course participants set up post-training WhatsApp groups to keep in touch with their peers. In many developing countries, mobile phone plans include very affordable (even free) access to WhatsApp which makes it an attractive channel for communication where SMS is expensive.
3. Email: Email continues to be a widely-used tool for formal communication, including sharing technical knowledge and resources. WASH professionals use email for sending detailed project updates, reports, or inquiries to colleagues or experts within their network. The newer generations of WASH professionals tend not to use email for technical support even when they have an email address.

4. SMS: While SMS is less likely to be used for sharing in-depth technical knowledge, it still plays a role in WASH communication. Professionals may use SMS to send quick updates, ask simple questions, or to coordinate with field teams in areas with limited internet access.

Summary

Across generations and regions, the usage of various communication channels and platforms is best described as diverse. Realistically, there is little hope of consolidating all of these diverse channels together into one global standard. There are too many factors that entrench a variety of channels to be confident in the success of efforts to consolidate.

Sector efforts must honor the communication preferences of individuals where possible, while recognizing that many communication channels have intractable technical constraints that prevent us using them in any way we wish.

For example:
- SMS is the most widely supported messaging channel, but it is also very limited. Even if we ignore cost for the moment, there are significant barriers sending messages across international borders. For example, it is possible to use common messaging platforms (such as [Twilio](#)) to send SMS messages *to* many African countries, but it is *impossible to receive messages back from most of those countries*. SMS is therefore unreliable as a global two-way channel for Help Desks or other functions that require two-way communication.

There is a tension between the desire to honor local communication preferences, and the sector's desire to provide a centralized service to the global WASH community. [Section 2.2](#) of this report describes a path forward that attempts to strike a reasonable balance between these competing desires.

2.1.3: Recommended learning opportunities based on user's activity/needs:

In CAWST's Tech Top Up assessment in 2020, the participants in the assessment expressed their preferences for different types of online learning resources. The most popular form of online learning was instructional videos, such as those found on YouTube, with 70% of respondents indicating this as their preferred method. Online courses were the second most popular, chosen by 59% of participants. Interactive PDFs and infographics were also popular, with 45% of respondents indicating a preference for these types of resources.

Efforts to promote resources as part of the Tech Top Up grant proved that promotion of online learning resources was effective. Across the board, CAWST saw significant jumps in traffic and engagement when resources were advertised online. This online advertising came with a cost, but it did prove useful in validating that there was demand for resources and that it was possible to connect with that demand through advertising channels.

CAWST has also experimented with "learning journeys" which is simply the concept that we look to provide a pathway that a learner can travel *after* completing a training that will lead them to additional valuable learning opportunities.

We believe strongly in this idea and continue to experiment, despite real challenges faced automating these journeys.

Manually crafted learning journeys

We have set up follow-on campaigns for training courses that drip feed suggested learning content to learners after they complete the initial training. Challenges encountered include:

- These journeys are more complicated than anticipated. The setup ends up being quite brittle, and fraught with assumptions about all people on the journey benefitting from the same set of ongoing content, provided on the same cadence.
- We suspect that the shift from a training course led by an instructor to an automated journey that requires participants to self-motivate to self-learn is a challenge for many learners.

AI-driven automation

We are only starting to establish the platforms at CAWST that can enable AI driven personalization and automation. Early attempts to experiment with this over the past couple of years have been abandoned primarily because the volume of data required to train AI models to generate novel learning journeys significantly exceeds the volume of clean data we have available. There is a valid privacy concern as well: in order to capture the data that can train these models, we need to track identifiable individuals across various platforms and touch points so that we can learn what discrete individuals are engaging with over time. Various privacy regulations (e.g. the EU's GDPR) add significant overhead to these efforts which slows progress.

2.1.4: Gather user feedback and needs analysis while delivering services:

This section analyzes the responses from a survey targeted at professionals involved in WASH (Water, Sanitation, and Hygiene). The objective was to better understand their preferences and needs in order to develop a new WASH Hub online platform and service.

Demographics

- WASH Officer/Manager (national): 19 respondents
- WASH Advisor (multi-country): 10 respondents
- WASH Researcher: 10 respondents
- WASH Coordinator (national): 8 respondents
- WASH Funder: 1 respondent

Key Findings

1. **Response Time Preferences**: 50% prefer a detailed, more researched answer within a week, while the other 50% prefer a quick "good enough" answer within 1 day.
2. **Resource Preferences**: 38% prefer more online resources, while 62% would rather talk with an expert.
3. **Usage Purpose**: 75% use online WASH resources for general WASH knowledge/learning, whereas 25% use them for immediate troubleshooting related to an active project.
4. **Why do some prefer online resources versus experts**
   - For online resources: Availability, flexibility, cost-effectiveness, and easier knowledge consolidation were the key reasons.
   - For talking with an expert: Interactive nature, tailored advice, and immediate problem-solving were cited as crucial factors.
5. **Gaps in Existing Resources**: Respondents highlighted the need for multi-language access, centralized repositories, better archiving, practical examples, quick expert exchanges, and updated research.

Recommendations for Building a New WASH Hub Online Platform and Service

1. **Diverse Content Delivery**: Offer both quick-response guides and detailed research materials to cater to the 50-50 split in preference for response time.
2. **Hybrid Support System**: Develop a platform that provides both online resources and the option to talk with an expert, leaning slightly more towards the latter based on user preference.
3. **Multi-Purpose Design**: Ensure the platform serves both educational and troubleshooting needs, with a heavier emphasis on educational content (75%).

4. **User-Friendly Interface**: The platform should include advanced search options, multiple language support, and mobile accessibility to better meet the diverse needs of the user base.
5. **Resource Centralization and Archiving**: Create a well-organized, searchable central repository for all WASH resources, including guides for budgeting, M&E, and community projects.
6. **Localized Solutions**: Incorporate localized solutions and practical examples, particularly those relevant to French-speaking zones as highlighted in the survey.
7. **Instant Support**: Introduce quick chat features and maybe even a hotline for immediate troubleshooting assistance.
8. **Affordable or Free Access**: Considering that some respondents noted that valuable information is often not free, strive to offer the majority of resources and services at no cost.
9. **Continuous Update and Review**: Regularly update the platform with new research, case studies, and tools. Allow for user reviews and contributions to ensure the material stays current and relevant.
10. **Engage Experts for Live Sessions**: Consider hosting webinars or live Q&A sessions with WASH experts to address complex challenges and questions in real-time.

By addressing these recommendations, the new WASH Hub platform can be tailored to meet the diverse needs and preferences of its intended users, thus providing a valuable service to the WASH community.

Deliverable 2.2: Delivering a cohesive experience (including across existing platforms)

Our starting point for this deliverable was the previously established requirement: **WASH Hub must be "living and breathing" alongside current sector platforms, until it enables cohesion across other platforms, or replaces legacy sites.**

2.2.1: How WASH Hub can live and breath alongside current platforms

For WASH Hub to succeed as a hub, it must deliver enough value to bring people to it, from day one. This is our view of the minimal features of WASH Hub, and how we suggest allocating resources and effort to build these features.

Feature	Description	Build effort
Aggregator of knowledge	A consolidated experience for users to search for relevant content across existing WASH-related online libraries, and WASH Hub itself.	20% or less
Helpdesk	Support WASH practitioners with an online "help desk" through which they can engage CAWST staff and partners' expertise. See above.	10%
Hubs	Described immediately below this table	80% or more

What is a "hub" and why such a big focus?

There is a strong expressed desire to optimize for interpersonal interactions through WASH Hub. Overall, interviews suggest that the human element is the most important ingredient for the platform's success. Merely aggregating and publishing content *will not be enough* to create an engaged community and facilitate valuable peer-to-peer learning. In addition, there are already widely used platforms that provide powerful capabilities to aggregate and search content including, of course, search engines such as Google.

WASH Hub should focus more on facilitating **connections and conversations** between people. Interviewees regularly mention that people currently tend to get information by asking their peers and colleagues directly, rather than consulting repositories of documents. So the platform should make these kinds of human interactions and relationships easier.

Therefore, a critical challenge for WASH Hub is to find a way to establish and support communities inside which the necessary connections and conversations flourish. We are calling these communities "**hubs**".

Establishing and supporting a hub is not easy, and understanding what WASH Hub can do to meaningfully support communities has been a large part of our research. No magic ingredient has been found, but two themes emerged from our interviews and research:

1. Anecdotal evidence from thriving (and dormant) communities, as well as comments in interviews suggest that the "topic scope" for a hub is important. Meaning: a community

appears to be more likely to form around a narrow topic than a broad one. Examples of the topic around which a thriving community has formed include a *specific humanitarian crisis*, or an active research topic such as *menstrual hygiene.* Conversely, it appears difficult to establish and sustain a thriving community around a broader topic such as *hygiene.* As an example, there is a broad "Hygiene" KnowledgePoint [forum](#) that CAWST has tried but not succeeded in building to be self-sustaining. By comparison, other narrower forums such as one for the Handwashing tool Wash'Em which is also used as part of Wash'Em training are busier.

2. If communities form best around timely and/or narrow topics, we should expect many communities to follow a predictable path of building up, and then going dormant. A hub that comes together during a humanitarian crisis will disperse with time as the crisis eases. Similarly, a hub built around an active research topic will only thrive so long as that research topic remains active. Hubs going dormant shouldn't be viewed as a failure. Rather, it reflects the real-world reality that energy and investment is only directed in a particular direction for so long.

We recommend building and positioning WASH Hub primarily as a series of hubs.

Some important considerations about hubs:
1. Hubs will be low effort to create, but will require approval to ensure quality. There is a need to guard against setting up hubs that don't have a credible chance to flourish.
2. Existing hubs must be easy to find and join. At this point, we expect all hubs to be public.
3. As much as possible, hubs will be archived so that all activities from hubs remain available for future reference, even after the hub has gone dormant. Furthermore, we will solicit learnings from hub participants when a hub is archived. For example: cycles of disasters or population movements can mean that regions face similar crises several years later. Capturing previous lessons learnt or guidelines from the last cholera epidemic or earthquake would help new players when the next cholera epidemic or earthquake hits.
4. WASH Hub will support hosting of new hubs within WASH Hub itself, as well as hosting a "bookmark" to an existing external hub that is hosted elsewhere. For example, it may make sense to present the new [SaniHub](#) as an external hub for fecal sludge management. The goal is to make existing external hubs as easily discoverable as hubs that are hosted directly on WASH Hub.
5. To start, each hub will be in one language. As part of the formation of a new hub, the language will have to be selected. It is hard enough to form a community in one language, but harder still if a particular hub is in multiple languages.

What will a hub look like?

No doubt this will evolve over time as we experiment with more and more hubs used in more and more contexts. At a minimum, a hub:

1. Has a defined topic (for example: a specific humanitarian outbreak, or an area of research or perhaps even a specific country)
2. Has a small number (1-3) maintainers available to support the hub. Those maintainers are not paid by WASH Hub. Maintainers *may* be paid by other means via agencies or clusters. For example, as part of the maintainers role where there is one in a national cluster, or as part of an agency's response to a humanitarian cluster.
3. Has open membership: free to join by members of WASH Hub
4. Supports the ability to assemble key information from the WASH Hub's resource library
5. Supports the ability to author new key information that can be published into the WASH Hub's resource library.
6. Supports the ability to link to external resources that aren't part of the resource library.
7. Supports the asking and answering of questions, including marking answers as "accepted". The best known model for this is are "Stack Exchange" websites including:
   a. [Stack Overflow](#), the *de facto* site for software developers to ask questions (and usually the first result in Google when searching for an answer)
   b. [English Language](#) a question and answer site for linguists, etymologists, and serious English language enthusiasts
   c. [Mathematics](#), a question and answer site for people studying math at any level and professionals in related fields
8. Supports posting announcements that are, in turn, sent to members.
9. Can be marked as inactive at which point it is treated as a static archive.
10. Can be fully usable for people on all reasonably modern smartphones, tablets and computers using only a web browser, including situations where connectivity and bandwidth is far from ideal.

Finally, the concept of hubs is by design extremely modular. As described above, a hub can be fully hosted on WASH Hub, but a hub can also be a bookmark to an existing external site. If, in the future, an existing external community wishes to migrate to WASH Hub, that can be supported. Because of the variety of platforms and channels that the existing community may be using, there can be no guarantee that historical content can be migrated but we would always want to see an effort to accommodate that.

General User Experience Considerations

Across WASH Hub, the experience of the user must be kept front and center. These general guidelines will help, and are a summary of a larger set of Design Considerations that were crafted for this initiative.

Make it easy for users to:
- Find questions/resources/trainings/help relevant to their query,
- Post their own questions/resources/trainings, and
- Respond to forum questions they have knowledge of and/or experience in

User registration and profiles
- Create profiles with info on their: expertise, interests, and background
- Enable users to find and follow topics (or questions) of interest

Categories and tagging
- Create clear and well-defined categories
- Implement a tagging system to allow users to:
- Tag questions/resources as they are created (by the user adding them)
- Tag pre-existing questions/resources

Minimize redundancy with similar or synonymous:
- Categories/tags
- Questions

Multi-language capability
- Translation and language preference should be fully integrated (site-wide language toggle to change static text elements)
- Have a consistent pattern to deal with the challenge of having some content available in certain languages so users are not led astray.

2.2.2: WASH Hub platform/infrastructure

Lessons and recommendations

Simplicity above all else
Of all the lessons derived by CAWST's forays into developing, maintaining and offering online services, one stands out: simplicity wins. Every time. Over the years, we have inadvertently rebuilt or partially duplicated services when, in hindsight, we should have invested in improving the existing service. Often this was due to real or perceived pressures from project-based funding that encouraged us to create net-new deliverables. Over time, this leads to having multiple overlapping platforms to maintain and promote, which also leads to confusion for users. A real and common example of this is users struggling to find a resource across CAWST's multiple online knowledge bases including WASH Resources, HWTS Knowledge Base, and the Biosand Filter Knowledge base.

Free open source versus commercial licensing

In choosing which software and services to use to power WASH Hub, it is critical to consider the trade-offs between using free open source software (FOSS) and commercial offerings. FOSS has the benefit of being free to acquire and use – forever – but *may* have less options for support and updates, or *may* see less active development. Despite these risks, it provides cost certainty whereas commercial offerings can have cost surprises. As an example, CAWST uses a commercial product to power [Knowledge Point.](#) Recently, new features for that product have been released only on a new pricing plan which is 12x as expensive as the plan we are on now! This increase is untenable, and *will* force us to find a new home for Knowledge Point in time. In general, we prefer the use of FOSS products as the basis for WASH Hub but in practice it can be hard to adhere to that preference as there are not mature FOSS products for all needs.

Candidate Platforms

The platforms discussed here are not mutually exclusive. Part of one approach could be combined with other approaches as the project moves forward.

WordPress

WordPress is used to power roughly 45% of the websites in the world, from very small to enterprise. The strength of WordPress is the ecosystem around it: there are plugins that extend the functionality in nearly every way possible, and there are millions of people experienced with the setup, maintenance and operation of WordPress in every corner of the world. WordPress is *also* the platform used to build the recently completed SaniHub.info.

The ecosystem of plugins, and the architecture of the platform, makes it relatively easy to extend the functionality of the platform without having to custom build everything from scratch. This includes housing resources, search, user and account management, translation management, and more.

Licensing & Hosting Costs: $500-1000 / year

Stack Overflow, and Stack Overflow for Teams

Stack Overflow is a knowledge sharing platform that optimizes for peer-to-peer support. Unlike many discussion forums that are built to facilitate *discussions*, Stack Overflow is optimized for asking a question and getting a high quality *answer*. The platform was originally created as a place for software developers to ask questions and get answers about their work, but it has since branched out to a [broader set of topics](#).

The approach to using Stack Overflow *could* leverage the free version of Stack Overflow, but it could also be powered by the paid Stack Overflow for Teams solution. The most relevant distinction between the free and paid version is that the paid version creates a private community that requires users to have a login to access it, whereas the free version is open to the public (just like all existing [Stack Overflow powered sites](#)). Most of the hubs that we can imagine existing on WASH Hub should be open to the public, but there could be circumstances (e.g. a humanitarian response in a conflict zone) where there is a desire for privacy: the identities of those involved or other aspects of the hub may be sensitive.

A major limitation of Stack Overflow is language. A single Stack Overflow site can only operate in a single language. This is an intentional design decision in the Stack Overflow product, and not likely to change anytime soon. There are some potential solutions to provide a translation layer on top of Stack Overflow to help users to be read and write in their chosen language, however, this would require custom development and ongoing maintenance.

Costs: Stack Overflow for Teams is $13.50 USD per user, per month. We have been offered a 20% discount and may be able to negotiate better if we wish to pursue it. With the 20% discount applied, the costs are $130 USD per user, per year. The costs are significant, especially if we have an active community of hundreds or thousands of people. Since a recurring theme in all the research to build these recommendations was the importance of peer-to-peer knowledge exchange, the case for this level of investment could be made to support the peer-to-peer exchange.

Custom Build

Websites are powered by software so with enough human and financial capital, it's possible to custom build anything. The costs involved in developing and *maintaining* (forever!) custom software is always significant, and so we recommend avoiding custom building wherever possible.

Some level of customization or custom development will always be required. For example, choosing WordPress as a platform only gives you a platform to build on. The setup of the various features, the look and feel, and so-on will all involve some degree of customization on top of the base platform. The key is to choose a base platform that minimizes the amount of customization required so as to minimize the ongoing maintenance burden.

To be blunt: Don't undertake custom development unless there is funding and an appetite to keep a team dedicated to maintaining the solution *forever*.

Costs: Significant up-front and then also requires ongoing maintenance.

Deliverable 2.3: Life-cycle, human resources, governance and financing

Life-cycle

The long-term sustainability of the WASH Hub platform is crucial. We have seen numerous platforms rise and fall in the sector due to the lack of sustainable funding, ownership and from not keeping the platform relevant to its users. Insights from key informant interviews highlight the importance of securing enduring sources of funding to maintain and upgrade the platform over multiple years. Failing to ensure ongoing funding and resources could lead to abandonment after initial development. The platform should be built with the expectation of a minimum operational period of 5 years, with careful planning around resourcing and governance.

Human Resources

The interviewees emphasized the importance of the human element in the WASH Hub initiative. The platform should focus on facilitating connections and conversations between people, ideally with experts answering specific technical questions and moderating discussions. This active human interaction will require dedicated effort, cultivation, and sustainment. Relying solely on volunteers is deemed risky, and there should be dedicated staff and resources to manage and maintain the platform. Staffing costs must be considered for features like technical live support and content moderation.

Our recommendation for key Human resources are:

Area	Role & Expertise	Effort level
Initial Website Development	Web product management	6 person-months
	Developers (UI/UX and full stack)	18 person-months
	Advisor (WASH sector), possibly divided into multiple consultants	2 person months
	Initial content curation	6 person months
	Sub-Total:	*32 person months*
Ongoing Platform Development (annual)	Product manager	1/4 full time equivalent (FTE)
	Developers	1/2 FTE

	WASH Advisor	¼ FTE
	Hub maintainers (per hub!)	Varies based on hub activity
	Sub-Total (annual):	1 FTE
Live Support	AI Assisted front-line agents	3 hrs per day
	WASH Advisors (more advanced and nuanced WASH expertise, ideally distributed with Roadmap partners)	15 hours per week depending on demand continually assessed
Content	WASH expertise, acknowledgement & research management skills	10-80 hours per month depending on features (user contributions leading to more moderation)

Note that the human resource requirements can vary significantly based on scope decisions. What is provided here is largely based on past experience and knowing what investment it takes to see other projects with similar complexity through to completion. Scope and budget refinement will be required as early tasks if WASH Hub proceeds.

Governance

The governance of a platform is crucial for its sustainability, shaping its direction, ownership, maintenance, contribution mechanisms, and the relationship between data and platform ownership. In the context of the WASH Hub platform, we explored various governance models to address key questions concerning who owns it, runs it, contributes, maintains it, and decides its direction. Through this exploration, we identified four distinct governance models: Single Owner, Collaborative Governance, Public-Private Partnership, and Hybrid Governance.

Each of these models presents unique configurations in ownership, product management, contributors' expertise, opportunities, and challenges. For instance, a Single Owner model allows for fast decision-making but may have potential conflicts of interest. Collaborative Governance brings increased legitimacy but may lead to slow and complex decision-making. Public-Private Partnership leverages both the public sector's authority and private sector's efficiency, while the Hybrid model offers a diversity of ideas and clear leadership with broader input. Insights drawn from these models help in navigating challenges commonly encountered in the NGO-run platforms, such as shelving, paralysis from too many contributors, limited donor recognition, and issues related to intellectual property ownership.

Governance Model	Owner	Product Management	Contributors (Expertise)	Opportunities	Challenges
Single Owner	Single entity (private company or NGO)	Managed by the owning entity	Expertise provided by the owning entity and/or contracted externally	Fast decision-making; Clear accountability	Potential for conflicts of interest; Less representation of the WASH sector's diversity
Collaborative Governance	"Consortium" of NGOs	Shared management by NGO members or hired product manager	Expertise provided by the member NGOs and/or contracted externally	Increased legitimacy and representation; Shared responsibilities and risks	Potential for conflicts between NGOs; Slow and complex decision-making process
Public-Private Partnership	Joint ownership by a private company and a public entity	Managed jointly by the private company and public entity or a hired product manager	Expertise provided by the owners or contracted externally	Combines public sector's authority and private sector's efficiency; Access to public funds	Potential for conflicts between public and private interests; Requires careful relationship management
Hybrid Governance	Owned by a primary NGO with decisions informed by a board of external contributors	Managed by the owning NGO with input from the board of external contributors	Expertise provided by the owning NGO and external contributors	Diversity of ideas and expertise; Clear leadership with broad input	Potential for conflicts between the owning NGO and contributors; Decision-making may be slower with more inputs

What we've learnt:
- Most NGO run platforms get shelved or archived
- Too many cooks paralyze movement
- Lack of donor recognition limits credibility
- Donors want to own (e.g. USAID) all IP

Hybrid governance models have been suggested where there is a core organization responsible for the platform but also allowing contributions from partners. Clear ownership and accountability, without diffuse governance by committee, are essential for the success and sustainability of the platform. Strategic partnerships with private sectors for technical expertise while maintaining neutrality could also be beneficial.

Governance Structure Recommendation

Based on CAWST's experience developing digital products in the WASH sector, our strong recommendation related to governance is to position one organization with strong expertise in online technical support and networking as the primary owner of the development of WASH Hub, including the product management decisions that guide the direction of the platform features. This owning organization must be trusted to solicit input and feedback to guide the direction of the platform. We advise gathering this feedback broadly from around the sector, along with a board of external contributors who are actively involved in the platform. Specifically, we expect the "board of external contributors'' to be made up of individuals that are *active users* of the platform – sometimes referred to as a "customer advisory board".

This is similar to our approach to building this report and the recommendations contained within: CAWST took the lead, made our best efforts to solicit feedback, and moved as quickly as we could to make recommendations on the approaches that we believe will best serve the sector.

Data Governance

An essential aspect of the WASH Hub platform's governance involves aligning with global and local data management and privacy laws. This includes compliance with the General Data Protection Regulation (GDPR) in the European Union, among other relevant regulations that may apply in various jurisdictions. *See Appendix: Data Governance* for more information.

Financing

The financial sustainability of any platform is paramount to its long-term success and ability to meet and adapt to the needs of its users. In the context of the WASH Hub platform, we explored various financial models including Subscription-Based, Donor-Funded, Freemium, Pay-Per-Service, and Advertising models.

Our exploration was guided by essential questions such as who would pay for the initial and continuous build, how expertise would be compensated, the balancing of multiple revenue streams, and the delineation of free versus paid services. Learning from the past, we recognized the constraints of large donors' reluctance to solely fund this type of project, and the unfamiliarity of WASH funders with technology project life cycles. Additionally, we acknowledged that without dedicated and paid management, projects may stall, and free expertise cannot be relied upon indefinitely. These considerations helped shape our analysis of various financial models, each with its unique revenue sources, human resource implications, opportunities, and challenges, ensuring a well-rounded understanding of the financial aspect of the WASH Hub platform.

Financial Model	Revenue	Human Resources	Opportunities	Challenges
Subscription-Based	Subscription fees from NGOs, government agencies, and institutions	Paid staff and interns; Expertise from subscribing organizations	Stable revenue; Increased user engagement	Limitations for organizations with limited funds; Need for constant value addition
Donor-Funded	Funds from donors (private individuals, corporations, foundations, or government agencies)	Paid staff and interns; In-kind contribution from partner organizations	Accessibility for all WASH practitioners; Potential for large donations	Uncertain, fluctuating funding; Potential shift in focus
Freemium	Revenue from users upgrading to premium services	Paid staff and interns; Expertise from premium users	Wide range of users; Potential for conversion to paid services	Strained resources due to free users; Lower than expected conversion rate
Pay-Per-Service	Fees for specific services	Paid staff and interns; Contracted expertise	Users pay only for needed services; High revenue potential from popular services	Deterrence due to cost; Requires efficient resource management
Advertising	Revenue from advertisements	Paid staff and interns; Expertise from advertisers	High revenue potential with large user base	Advertisements might distract users; Dependence on advertiser's interests

Financing Recommendations

We tested these models with key informants from the WASH Sector. Critical recommendations include:

1. Securing multi-year funding commitments from donors, partners, or even exploring crowdsourcing models, thus avoiding the dependency on short-term project funding.
2. Organizations contributing content and requiring more advanced features may pay subscription fees, but end-users must have free access.
3. Opportunities to generate revenue through value-added services should be explored while keeping core content free. As a historical example, DewPoint was funded fully by DFID as a service that provided advice to the UK government, but also allowed for free advice to the WASH sector.
4. Explore opportunities for funding directed to specific hubs. For example, sponsorship for the human resources required to maintain a hub for a specific research topic, or a specific humanitarian event.
5. Realistic cost estimations must be developed, including hosting and maintenance, and annual HR costs for advanced features.

Deliverable 2.4 - Coordination & consolidation

This project has been an interesting experience for CAWST. We recognize that we were given the opportunity to create this report and provide our recommendations because of our experience in combining WASH expertise with digital expertise. We also continue to hear from stakeholders that assume we will – or in some cases assume that we already are – building WASH Hub itself. As we reflect on our learnings in the WASH+Digital space over the years, and – importantly – *how* we have generated those learnings, we realize that we already have in some form built systems that bear strong resemblance to the features recommended in this report. This isn't a surprise: the funding for this report was, in part, directed towards deriving insights and learnings from our existing platforms which implies that we had relevant existing platforms to learn from!

For example: KnowledgePoint forums, the HWTS Network, and various ad-hoc WhatsApp groups are all prototypes in some regards for the concept of Hubs as presented in this report. WASH Resources, as well as the KnowledgePoint Search are all prototypes for Aggregation of Knowledge. Finally, our online helpdesk is, of course, a strong prototype for the helpdesk proposed in this report.

CAWST, like many who read this report, are wondering "what's next"? With many of the key parts already existing, do we want to invest in building more? Or, should we focus on adoption of what is already built? This is not CAWST's decision alone, and we are eagerly looking forward to discussion about this with our peers in the WASH Roadmap!

Appendix: Data Governance

Alignment with GDPR

GDPR emphasizes the protection of personal data and privacy for individuals within the EU. Complying with these regulations will necessitate implementing robust mechanisms for user consent, transparency about data usage, the right to access and erase personal data, data portability, and ensuring the confidentiality, integrity, and availability of data.

Other Data Management and Privacy Laws

Different countries and regions may have specific laws and regulations relating to data protection. Adherence to these regulations requires careful assessment of the legal landscape in all areas where the platform will operate. This includes understanding obligations concerning the collection, storage, processing, and sharing of personal data.

Data Governance Implementation Considerations

To ensure compliance, WASH Hub will need to:

- Develop Clear Policies: Create transparent policies that detail how personal data is collected, used, shared, and stored, ensuring users are well-informed.
- Implement Technical Controls: Employ robust security measures to protect against unauthorized access and data breaches.
- Data Minimization: Collect only the necessary data required for the intended purpose.
- Ensure Vendor Compliance: If third-party vendors are involved in handling data, they must also comply with all relevant laws and regulations.
- Regular Audits and Monitoring: Continuous monitoring and regular audits can help in maintaining compliance and quickly identifying any areas of concern.
- User Rights Management: Implement mechanisms that allow users to access, correct, or delete their personal data, in alignment with legal rights.
- Training and Awareness: Staff should be trained on data protection principles, and there must be an ongoing commitment to keeping this knowledge up-to-date.

Data governance is not only a legal necessity but also an ethical commitment to protect the privacy and security of the platform's users. By taking a proactive and comprehensive approach, WASH Hub will build trust with users, partners, and regulatory bodies, ensuring that the platform

operates within the bounds of the law while respecting user privacy. This alignment with data governance principles will further contribute to the sustainability and success of the WASH Hub platform.